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Digital marketing of formula and baby food negatively influences breast feeding and complementary feeding: a cross-sectional study and video recording of parental exposure in Mexico

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ABSTRACT

Background There is little evidence of the association between digital marketing of formula and baby food and infant and young child feeding (IYCF) practices.

Objective Assess parents' exposure to digital marketing of formula and baby food for children <2 years and its association with the purchase and IYCF practices in Mexico.

Methods Parents ≥18 years recruited from a market research panel completed an online survey (n=1074) and capture-on-screen (n=95) between December 2020 and January 2021. Logistic regressions were used to estimate the association between exposure to digital marketing of formula and baby foods with its purchase, motivation, consumption and IYCF practices.

Results Digital marketing of formula and baby food was self-reported by 93.9% of parents in the online survey and observed by 93.7% in the capture-on-screen. Recorded ads did not comply with the International Code of Marketing of Breast-milk Substitutes. Parents who self-reported seeing a higher versus lower number of ads were less likely to exclusive breast feed (OR=0.38; 95% CI: 0.19 to 0.78), and more likely to give mixed feeding (OR=2.59; 95% CI: 1.28 to 5.21), formula (OR=1.84; 95% CI: 1.34 to 2.53), processed foods (OR=2.31; 95% CI: 1.59 to 3.32) and sugary drinks (OR=1.66; 95% CI: 1.09 to 2.54). Higher exposure to ads was associated with a higher chance of purchasing products motivated by nutritional (OR=2.1; 95% CI: 1.32 to 3.28) and organic claims (OR=2.1; 95% CI: 1.21 to 3.72).

Conclusions Digital marketing of formula and baby food may negatively influence IYCF and should be regulated to ensure children's nutrition and health.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Digital marketing of formula and baby food is increasing worldwide and may affect infant and young child feeding (IYCF) practices, but there is limited evidence.

WHAT THIS STUDY ADDS

⇒ Exposure of parents to formula and baby food promotion in digital media may increase the chance of giving formula, sugary drinks and processed foods to their children.

⇒ Parents with a high versus low exposure to digital marketing were 62% less likely to exclusively breast feed their children during the first 6 months of life.

⇒ Purchase of formula and baby foods may be motivated by the nutritional content claims found in marketing.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Marketing regulations should ban breast-milk substitutes and baby food promotion in digital media and the use of health claims, since they may confuse parents about optimal IYCF.

BACKGROUND

Breastfeeding and adequate infant and young child feeding (IYCF) practices promote optimal development, generate healthy eating habits and play a crucial role in health outcomes in childhood and throughout life.[1–3] One of the main barriers to successful breast feeding is the marketing of breast-milk substitutes, which presents it as a safe option equal to or better than human milk, downplays the benefits and safety of breast feeding[4] and influences social norms and adoption of infant formula use.[5–7] The International Code of Marketing of Breast-milk Substitutes (Code) recommends that countries implement regulations to prohibit marketing of these products.[8] Within its provisions, it is established that informational and educational material should state the benefits and

superiority of breast feeding, instructions for the proper use of infant formula and should contain no pictures of infants or other pictures idealising the use of breast-milk substitutes. In addition, no company should seek direct or indirect contact with pregnant women or mothers, fathers and caregivers, including through social media channels.[8] Subsequent resolutions of the World Health Assembly recommend the prohibition of companies from donating, disseminating or providing IYCF information and educational materials to parents, providing incentives to health professional, or using health and nutrition claims in relation to infant formula and baby foods.[9]

Marketing of baby foods, defined as commercial foods and beverages for infants and young children, is associated with a decrease in prolonged breastfeeding[10] and poor IYCF practices.[11] Baby foods are advertised as a better alternative to natural foods, but many contain excess sugars, fats and salt,[12–14] while infant formula (0–6 months), follow-on formula (6–12 months) and growing-up milk (milk-based formulas intended for consumption by children aged 12–36 months) usually contain a high sugar content increasing the risk of caries and overweight or obesity.[15]

The internet and social media represent a source of information used by parents and caregivers who seek support in feeding their children.[16 17] This has allowed companies to have greater reach and better opportunities to promote their products, using unethical campaigns, such as manipulative marketing tactics that exploit parents' anxieties and aspirations, make inappropriate health and nutrition claims, and encourage health professionals to promote formula milk products,[6] many of which are not regulated.[18–21] Digital marketing is defined by the WHO as a promotional activity, delivered through a digital medium, that seeks to maximise its impact with creative or analytical methods to activate implicit emotional persuasion.[22] Only one study in the USA has documented that exposure to the marketing of formula on websites during the prenatal period decreases breastfeeding intention and initiation.[23]

In Mexico, only 28.6% of children under 6 months are exclusively breast fed, 42.9% of children under 1 year consume infant formula[24] and more than 35% of children between 6 and 23 months consume sugary drinks.[25] The promotion of formula has been documented in both traditional[26 27] and digital media[28] and has been recommended by health professionals.[29] Mexican regulations state that marketing of infant formulas (0–6 months) should encourage breast feeding, indicate its benefits and include proper use information.[30] Also, formulas should be recommended only when the child is intolerant to breast milk, in the mother's absence or inability to give milk, in any other well-founded health reason and ban its promotion in healthcare centres and hospitals.[31] Since more than 75% of women of reproductive age in Mexico use the internet through a smartphone,[32] and the number of internet users is growing,[33] analysing digital marketing of formula and baby food is relevant to providing evidence for countries with similar contexts.

This study aimed to estimate the exposure of parents with children <2 years to digital marketing of formula and baby food, its association with the purchase of these products and breastfeeding and complementary feeding practices. The CLICK (Comprehend the digital ecosystem, Landscape of campaigns, Investigate exposure, Capture-on-screen, Knowledge sharing) monitoring framework methodology, proposed by the WHO, was adapted to assess the marketing of unhealthy food aimed at children in digital media.[22]

METHODS

Parents with infants or young children who participated in a nationally representative panel of a market research company[34] were invited to complete an online survey. The survey collected information regarding brands, products and digital platforms where parents reported seeing advertisements for formula (infant formula and growing-up milks) and baby foods. Also, the survey asked about purchases made, the intention and motivation to purchase these products and how children's feeding practices are influenced by digital marketing, as well as IYCF practices of their children including breastfeeding intention and practices. Parents' knowledge about the Code, their opinion regarding digital marketing regulation and their perception of the company's responsibility were also investigated.

The participants were recruited by the company through advertisements on apps, social media such as Facebook, several web databases and telephone messages via SMS. Participants had to be over 18 years, live in Mexico, have a mobile device with available internet service, have a child between 0 and 24 months and agree to participate in the study. As a reward for participating, participants received points from the company that they accumulate to redeem for products or cards with electronic balance.

A pilot test was carried out on a sample of 101 individuals to test the instrument, and adjustments were made to the questionnaire. Participants (n=1074) responded to the survey from December 2020 to 23 January 2021.

Sample size estimation

A sample size of 1000 individuals, assuming a 50% prevalence of exposure to digital marketing, a maximum error of 3.1% and a 95% confidence level would allow us to detect an OR of 1.28 between exposure to digital marketing and child feeding practices.

Patient and public involvement

Patients or the public were not involved in the design, or conduct, or reporting, or dissemination of the research.

Variables of analysis

The survey had 63 questions, divided into eight sections: (1) sociodemographic characteristics, (2) breastfeeding

intention and IYCF practices, (3) use of internet and social media, (4) children's use of mobile devices, (5) exposure to digital marketing, (6) purchase and motivation of purchasing formula and baby food, and intention and change of children's feeding practices, (7) perception of infant formula consumption concerning baby's health and (8) knowledge of the Code, regulations and corporate responsibility (see online supplemental file 2 for full questionnaire).

Sociodemographic characteristics

Information was obtained on the age and sex of participants, the number of children, sex and age of the youngest child, occupation, marital status, region (North, Centre, Mexico City and South) and years of schooling. Socioeconomic level was measured with the Mexican Association of Market Intelligence and Public Opinion Agencies scale,[35] which consists of six questions through which households are classified into seven levels that go from the highest to the lowest (A/B, C+, C, C–, D+, D– and E).

Breastfeeding and child feeding practices

Breastfeeding and complementary feeding practices were evaluated according to status quo or 'current status' indicators, constructed with the parents' recall about their child's consumption of breast milk and other food and beverages the previous day, as recommended by the WHO and the UNICEF.[11] We inquired about early initiation of breast feeding (in the first hour after birth), initial intention of feeding the child before birth (exclusive breast feeding and mixed/formula feeding), exclusive breast feeding in children 0–5 months (consuming only breast milk the previous day), mixed feeding (breast milk and any other type of non-human milk) and continued breast feeding from 6 to 23 months.

IYCF indicators were estimated considering the children's consumption the day prior to the interview for the following food groups: grains, roots and tubers, legumes, dairy, meat, eggs, fruits and vegetables, breast milk, formula milk (infant formula 0–6 months, follow-on formula 6–12 months, growing-up milk +12 months and formula for special needs), sugary beverages (commercially produced and packaged sweetened beverages such as soda, 100% fruit juice as well as fruit-flavoured drinks to which sweeteners have been added) and processed products which included commercial baby food and other industrialised products (such as chips, candies, cakes, pastries and other baked or fried confections) (online supplemental table 1).

Use of internet and social media

Parents were asked about the frequency of internet use (never, less than three times a week, three times a week, every day/almost every day), preferred devices to do so and most used social media platforms. The study inquired about the online searches conducted in the last month on topics such as nutrition and infant feeding, information about specific infant formula or baby food products, breast feeding, parenting, child health and development or any other topic related to their children's health/nutrition. Also, parents were asked if they had visited formula and/or baby food companies' websites or social media or attended any webinars and if those were held by formula and baby food companies.

Children's use of mobile devices

Parents were asked if their youngest children used mobile devices, if they had ever downloaded games, baby apps or advergames, defined as free online games that integrate advertising messages, logos and trade characters[36], and if they had identified infant formula or baby food advertising on these apps.

Exposure to digital marketing of formula and baby foods

Formula milk was defined as an infant's liquid food preparation based on cow's milk or soy protein, given as a substitute for breast milk. This included infant formula (0–6 months), follow-on formula (6–12 months), growing-up milk (12–36 months) and formulas for babies with special needs (lactose free, hypoallergenic, premature baby).

Baby foods were defined as commercial foods and beverages for children under 2 years of age. This category included cereals, porridge, yoghurt, snacks, cookies, puffs, biscuits, juices, baby water and supplements such as Pediasure, a specialised milk containing nutrients for children +12.

Logos of formula and baby food brands and images of their products (online supplemental file 2) placed in the online survey were selected based on the following criteria: (1) products with the highest sales in the Euromonitor report on baby food sales in Mexico,[37] (2) most consumed by children according to the National Health and Nutrition Survey (ENSANUT 2018–2019)[38] or (3) had a high number of followers on the company's social media. Products with increasing sales trends were also added to the survey (online supplemental table 2). In the online survey, parents were asked to self-report if they had seen the logos and/or images in the last month on digital media, including banners, sponsored links, websites, search engines, social media (ie, Facebook, Instagram, Twitter), apps, email, news, webinars, YouTube channels and other sources reported by participants.

Exposure to digital marketing of formula and baby food (self-report) was classified as: (a) the weekly frequency in which parents reported observing advertisements in digital media (never, 1–2 times/week, 3–5 times/week, daily) and (b) tertiles of the number of advertised products that parents reported seeing in the last month.

Purchase and motivation of purchasing formula and baby food, and intention and change of children's feeding practices

Parents were asked if they had purchased any formula or baby food products (online and physical stores) and their motivation for purchasing (for nutritional content, practicality, ease of administration, relief of gastrointestinal

symptoms, declaration of being an organic/natural product and satiety of the baby compared with breast milk). We asked if they decided to change their baby's current feeding, either to stop breast feeding or buy packaged infant feeding products and/or infant formulas due to messages seen in digital marketing.

Knowledge of the Code, regulations and corporate responsibility

The survey inquired if parents were familiar with the Code and, from a list of provisions (ban on breast-milk substitutes advertisement, samples, gifts, donations or low-priced sales and on images of babies or text that idealise their use, and the requirement to state the superiority of breast feeding, to consult with health personnel and to contain health risk warnings), we asked them to indicate which ones they knew or had heard of and if they considered that current regulations were sufficient. We also asked if they considered that the advertising of infant formula and baby food made them think that these products were equivalent or better than breast milk.

Capture-on-screen

A subsample of parents of the online survey (10%) was asked to make three-screen recordings of their mobile device (two during the week and one on the weekend) with a duration of 10 min each (30 min of total recording per person). They were instructed to record while browsing the internet or looking for information on breast feeding, child feeding or while checking their social media, mobile applications or watching maternity/paternity, parenting or feeding videos. They were also asked to record the pages where they searched for or bought formulas and/or baby foods in online stores or search engines. The information was collected in the weeks 14–21 December, 18–25 January and 4 March.

We counted the number of advertisements for formula and baby food products seen in the 10 min of recording and classified them as (a) intentional searches for the product and (b) unintentional searches.

We analysed the type of digital marketing (graphic ads, images or text, discounts and giveaways, learning material, storytelling and peer reviews, cartoon characters or celebrities and webinars), the specific formula and baby food brands and products observed in ads and breaches to the Code including: (1) lack of statements of the superiority of breast feeding, (2) lack of warning by improper preparation, (3) lack of statement about consulting health personal for using the product, (4) invitation to visit a website of the product, (5) invitation to join online parents club, (6) idealisation of the use of formula or baby food and (7) cross-promotion of infant formula (0–6 months) with formulas for older children (+6 months).

Statistical analysis

Sociodemographic characteristics of the participants, their exposure to digital marketing and main IYCF outcomes were described using means and SD for continuous variables and percentages for categorical variables.

Logistic regression models were estimated with the full sample (n=1074). As previously described, exposure to digital marketing was measured as: (a) the weekly frequency reported (never, 1–2 times/week, 3–5 times/week, daily) and (b) tertiles of the number of advertised products reported.

The analysed outcomes were: (1) purchase of any formula and baby foods in the past month; (2) purchase motivation and (3) change in child's feeding at any time due to marketing (stop breast feeding and/or give formula and baby food). Also, IYCF outcomes included: (4) exclusive breast feeding (0–5 months); (5) mixed feeding (0–5 months); (6) continued breast feeding (6–23 months); (7) consumption of processed products (0–23 months); (8) consumption of formula (0–23 months) and (9) consumption of sugar-sweetened beverages (0–23 months), all on the day prior to the survey.

To reduce bias due to confounding, the models were adjusted for the participant's age, sex, education, occupation, number of children, child's age, marital status, socioeconomic level and region, which are the main variables associated with breastfeeding and IYCF practices in the country.[24 39] Sensitivity analyses were performed stratifying the models with the initial intention of feeding the child before birth (exclusive breast feeding and mixed/formula feeding).

A subgroup analysis was performed of the association between tertiles of observed formula and baby food ads in the capture-on-screen subsample, both from the result of intentional and unintentional searches, with purchases and IYCF outcomes already described. All analyses were conducted in Stata SE-6 V.4 statistical package.

RESULTS

Sample characteristics

Online survey

Overall, 1080 individuals were invited to participate, and 6 individuals did not answer the survey. Overall, 1074 participants had complete information on all variables. Sociodemographic characteristics of the participants of the online survey are shown in table 1, column A. In total, 62.3% of participants were women. On average, they were 28 years old and had 1.8 children. Half of the children were less than 1 year. Their main occupation was employed or salaried (43.2%), most were married (45.2%), had a bachelor's degree (44.4%), lived in the Central region (38.4%) and their main socioeconomic level was high (22.5%), average high (24.5%) or average (40.9%) (table 1, column A).

Breastfeeding and complementary feeding practices

Exclusive breast feeding among children under 6 months was 32.6% and continued breast feeding after the first year of life was 45.2%. Among children 0–23 months, 58.2% consumed formula milk, 42.6% consumed sugary

Table 1 Sociodemographic characteristics of parents with children under 2 years of age who responded to the online survey and capture-on-screen in Mexico

Characteristics	A Online survey Percentage (%) (n=1074)	B Capture-on-screen Percentage (%) (n=95)
Age in years (mean±SD)	28.2±0.2	30.0±0.4
Sex (women)	62.3	71.6
Number of children (mean±SD)	1.8±0.3	2.0±0.1
Sex of the youngest child (girl)	48.0	41.1
Age in months of the youngest child (mean±SD)	11±0.2	11±0.4
Age distribution of the youngest child		
0–5 months	24.6	27.4
6–11 months	25.6	23.2
12–23 months	49.8	49.5
Occupation		
Autonomous or independent	12.7	6.3
Unemployed or looking for work	9.7	2.1
Employed or salaried	43.2	64.2
Student	4.7	1.0
Retired	0.3	1.0
Housework (housewife)	28.0	25.3
Other	1.4	0
Civil status		
Married	45.2	62.1
Divorced or separated	2.7	2.1
Single	9.2	6.3
Free union	40.5	29.5
Widower	0.3	0
No answer	2.1	0
Education		
Primary	1.7	0
Secondary	12	6.3
High school	38.9	25.3
Bachelor's degree	44.4	61.1
Postgraduate	2.3	7.4
Region		
North	18.1	22.1
Centre	38.4	38.9
Mexico City	17.4	22.1
South	26.1	16.8
Socioeconomic level*		
A/B (high)	22.5	42.1
C+ (average high)	24.3	20.0
C (average)	24.3	22.2
C– (average)	16.6	10.5
D+ (average low)	4.8	5.3
D (low high)	7.1	0
E (low low)	0.4	0

*The socioeconomic level was estimated according to the Mexican Association of Market Intelligence and Public Opinion Agencies.[35]

drinks and 72% consumed processed foods the day previous to the survey (online supplemental table 3). In the preceding month, 87.2% of parents reported purchasing formula or baby foods in physical and online stores, and 17.7% only in online stores. The main reasons given for the purchase were its nutrimental content (44.6%), ease of preparation (37.1%) and preservation (22.5%) (online supplemental table 3).

Exposure to digital marketing of formula and baby foods

Online survey

In total, 93.9% of parents reported seeing digital marketing on at least one site in the preceding month. Weekly frequency of seeing digital marketing was reported by 86.4% of parents, being most mentioned 3–5 times/week (34%) and 1–2 times/week (25.4%), while 4.5% reported none and 9.0% did not answer. Marketing was observed mainly on social media (77.4%). The mean number of advertised products reported was 26±0.51 SD. The most observed brands in digital marketing were Gerber, Nido and Nan (Nestlé), Enfagrow and Enfamil (Mead Johnson) and Danonino (Danone). Parents reported that the most advertised formulas on digital media were infant formulas (91.9%) and growing-up milk (89.3%), while porridge (77.3%) and yoghurt (70.8%) were the most advertised baby food products (table 2).

The products were presented in different advertising formats. The ones that the participants remembered the most were graphic ads, images or text (41.9%). In terms of content, participants also recalled seeing promotions, offers, discounts, giveaways (35.9%) and educational material, such as articles, blog posts and menus (31.4%). Parents reported having used social media to share advertising content for formula and baby foods (45.6%). Only 12.7% of parents reported knowing the Code, and less than half (47.7%) considered that the existing regulations for marketing formula and baby food were insufficient. Close to 55% felt that advertising suggests that formula is an equal or even better alternative to breast milk (results not shown).

Capture-on-screen

Overall, 95 out of 101 parents completed 30 min of device recordings (n=285 10 min recordings). Sociodemographic characteristics of the participants of the online survey are shown in table 1, column B. A higher

Table 2 Exposure (self-report) of parents of children under 2 years of age to digital marketing of formula and baby food in Mexico

Exposure and frequency	%
Any exposure in the last month	93.9
Sites of exposure to digital marketing	
Social media	77.4
Search engines on the internet	48.5
Online stores	33.4
Company's official websites	22.9
Blogs	20.6
Email	14.2
Apps	12.8
Webinars/conferences	1.9
None	6.1
Frequency	
1–2 times per week	25.4
3–5 times per week	34.0
Daily	15.9
<1 time per week	11.1
None	4.5
Not reported/do not remember	9.0
Number of formula and baby food products seen in digital marketing in the last month (mean±SD)	26±0.55
Tertile 1	9.4±0.28
Tertile 2	23.5±0.20
Tertile 3	47.0±0.74
Marketing of formula and baby food on sponsored online games for children*	69.1
Brands with the highest report of marketing in digital media	
Gerber	80.5
Nido	72.7
NAN	64.9
Enfagrow	59.9
Danonino	47.9
Enfamil	47.0
Products with reports on marketing in digital media	
Formulas	
Infant formulas (0–6 months)	91.9
Follow-on formulas (6–12 months)	84.2
Growing-up milk (+12 months)	89.3
Special formulas†	88.4
Baby foods	
Cereals	69.6
Porridge	77.3
Yoghurt	70.8
Chips, cookies, puffs, snacks	44.7
Juices	63.7
Water	58.2
Organic baby food	54.7

Online survey (n=1074).
*From 385 parents who reported that their youngest child uses mobile devices to play online games or watch videos.
†Functional/fortified formulas, lactose-free formulas and hypoallergenic formulas.

proportion of participants were married, had a bachelor's degree and had a higher socioeconomic level compared with the online survey participants (table 1, column B).

Overall, 89 parents (93.7%) observed at least one formula and/or baby food ad in their 30 min recordings. A mean of 6.8 ads for infant formula and baby foods/10 min of recording was observed by parents when doing an intentional search on the internet, and 1.7 ads/10 min of recording for unintentional searches. The most advertised product observed in the recordings was growing-up milk (intended for children ≥12 months) (42.3%), although advertising for infant formulas (0–6 months) was also identified (20.2%).

In each 10 min recording, there was at least one piece of advertising for infant formula or baby food was identified (n=168), and all contained Code violations. The main ones related to the lack of statements about the superiority of breast feeding (95.8%), warning of risk or damage by improper formula preparation (95.2%), consulting health personnel about the use of these products (93.5%) and invitation for parents to visit websites, social media or links to purchase their products (69.6%) (figure 1).

Association analyses

A higher frequency of exposure to formula and baby foods in digital media (self-reported by parents) was associated with greater odds of purchasing these products motivated by nutritional content and organic product claims (figure 2), and also higher chances of changing children's feeding practices influenced by marketing, giving mixed feeds (0–5 months), giving formula, but also continued breastfeeding children after 1 year, compared with parents that did not observe digital marketing (table 3).

Reporting a higher (tertile 3) versus lower (tertile 1) number of formula and baby food products in digital media was associated with a lower possibility of exclusive breast feeding (OR=0.38; 95% CI: 0.19 to 0.78), and a greater possibility of mixed feeding (OR=2.59; 95% CI: 1.28 to 5.21), and child's consumption of formula (OR=1.84; 95% CI: 1.34 to 2.53), processed foods (OR=2.31; 95% CI: 1.59 to 3.32) and sugary drinks (OR=1.66; 95% CI: 1.09 to 2.54) (table 3). Sensitivity analyses, stratifying by intention to exclusively breast feed

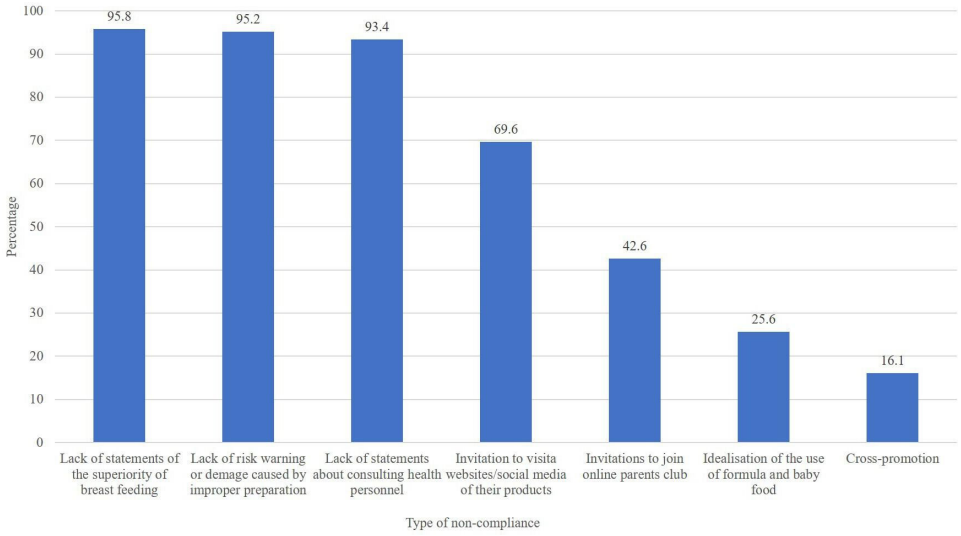

Figure 1 Non-compliance with the International Code on digital marketing in Mexico. Capture-on-screen of parent's devices with formula and baby food ads (n=168 recordings).

before birth, show that a higher versus lower exposure to digital marketing was also positively associated with purchase and consumption of formula and sugary drinks, changes in child feeding and giving mixed feeds (online supplemental table 4). Digital marketing of formula and baby food observed in the capture-on-screen subsample was not associated with breastfeeding and complementary feeding practices (results not shown).

DISCUSSION

A high percentage of parents with children under 2 years of age with access to the internet, and with different sociodemographic profiles, reported being exposed to digital marketing of formula and baby food. Capture-on-screen showed that this type of marketing breaches many provisions of the Code and that most parents were exposed to digital marketing, which was consistent with self-reporting. Parents with a high versus low reported exposure to digital marketing were 61% less likely to exclusive breast feed their children during the first 6 months of life, and more likely to give mixed feeds, and formula, sugary drinks, and processed foods to their children. They were more likely to indicate that their formula purchase was motivated by nutrition content claims.

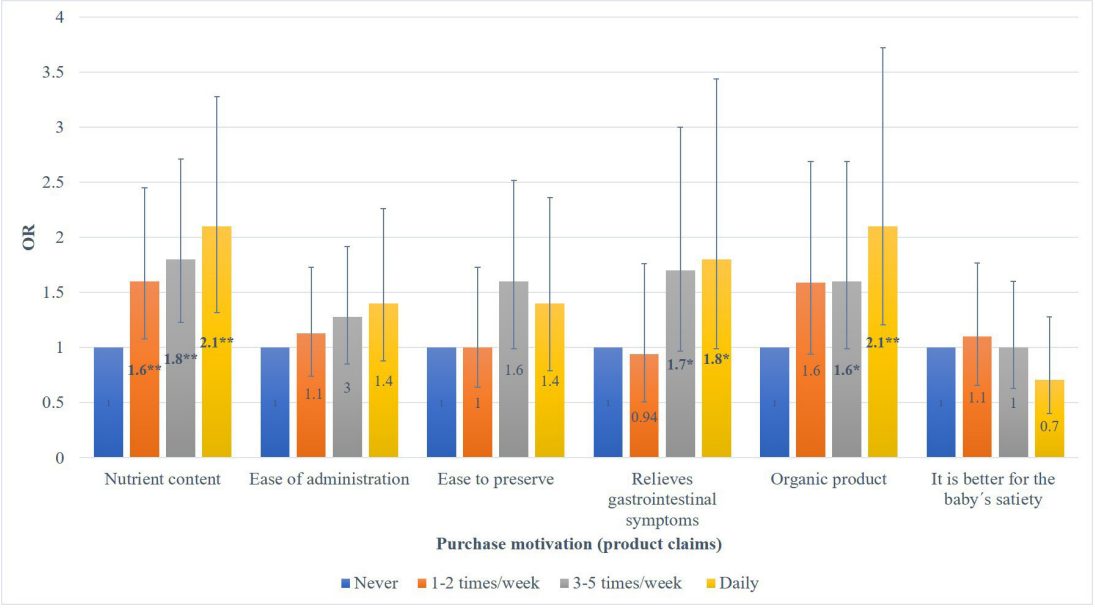

Figure 2 Association between frequency of exposure (self-report) of parents to digital marketing of formula and baby food, and motivation of purchase.[1] Online survey (n=1074). *p<0.10, **p<0.05. Estimations were made with a logistic regression model adjusted for: the age of the baby (in months), age and sex of the survey participant, socioeconomic level, number of children, marital status, occupation, schooling and region of the country.[1] Purchase of formula and/or baby foods (commercial foods for children under 2 years of age) in the last month in physical or online stores.

Table 3 Association between exposure (self-report) of parents to digital marketing of formula and baby food, with the purchase of products, and breastfeeding and child feeding practices

Exposure to digital marketing in the last month (self-report)	Purchase of formula and baby foods[1] OR (95% CI)	Changes in child's feeding[2] OR (95% CI)	Exclusive breast feeding (0–5 months)[3] OR (95% CI)	Continued breast feeding (12–23 months)[4] OR (95% CI)	Mixed feeding[4] (0–5 months) OR (95% CI)	Consumption of processed food[5] (0–23 months) OR (95% CI)	Consumption of formula[6] (0–23 months) OR (95% CI)	Consumption of sugary drinks[7] (0–23 months) OR (95% CI)
Frequency of digital marketing								
Never	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)
1–2 times/week	**1.9****	1.1	1.74	1.2	1.1	0.86	0.89	1.05
	(1.11 to 3.38)	(0.68 to 1.92)	(0.67 to 4.57)	(0.71 to 2.14)	(0.4 to 3.0)	(0.55 to 1.36)	(0.59 to 1.33)	(0.63 to 1.75)
3–5 times/week	**2.7*****	**1.89****	0.81	**1.8****	**2.5***	1.3	**1.44***	1.42
	(1.59 to 4.69)	(1.17 to 3.04)	(0.31 to 2.06)	(1.02 to 3.06)	(0.99 to 6.34)	(0.85 to 2.07)	(0.98 to 2.14)	(0.85 to 2.34)
Daily	**2.3****	**1.99****	0.93	**1.9****	1.8	0.94	1.2	1.13
	(1.23 to 4.35)	(1.16 to 3.42)	(0.33 to 2.56)	(1.03 to 3.73)	(0.65 to 5.88)	(0.57 to 1.57)	(0.77 to 1.90)	(0.35 to 1.28)
Tertiles of the number of advertised products observed in digital media								
Tertile 1	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)
Tertile 2	1.4	1.51	0.63	1.21	1.18	**1.60****	1.07	1.06
	(0.88 to 2.11)	(1.0 to 2.24)	(0.31 to 1.29)	(0.79 to 1.85)	(0.56 to 2.49)	(1.12 to 2.26)	(0.79 to 1.45)	(0.71 to 1.57)
Tertile 3	**2.7*****	**2.99*****	**0.38****	1.20	**2.59****	**2.31*****	**1.84****	**1.66****
	(1.6 to 4.5)	(2.03 to 4.4)	(0.19 to 0.78)	(0.77 to 1.86)	(1.28 to 5.21)	(1.59 to 3.32)	(1.34 to 2.53)	(1.09 to 2.54)

Online survey (n=1074).
*p<0.10, **p<0.05, ***p<0.001. Bold values are statistically significant at 90%, 95% or 99%. The logistic regression model adjusted for: the age of the baby (in months), age and sex of the survey participant, socioeconomic level, number of children, marital status, occupation, schooling and region of the country. (1) Parents who purchased formula and/or baby foods defined as commercial foods for children under 2 years of age, in the last month in physical or online stores. (2) Mothers/fathers who reported changing the way they were feeding their youngest children influenced by advertisements for formula and baby food observed in digital media. (3) Infants 0–5 months of age who were fed exclusively with breast milk during the previous day. 4 Children 12–23 months of age who were fed breast milk during the previous day. (4) Includes the consumption of human milk and plain water, human milk and animal milk/formula, human milk and non-dairy fluids, human milk and complementary feeding products. (5) Children 0–23 months who consumed packaged foods for babies, and other industrialised products that can be high in sugar, salt and/or unhealthy fats during the previous day. (6) Children 0–23 months that consumed infant formula (0–6 months), follow-on formula (6–12 months), growing-up milk (+12 months) and special formulas in the previous day. (7) Children 0–23 months who consumed commercially produced and packaged, sweetened beverages, including 100% fruit juice and fruit-flavoured drinks to which sweeteners have been added during the previous day.

Few studies have examined the relationship between the exposure to digital marketing of formula and baby food and its association with IYCF practices. In the USA, one study showed that pregnant women exposed to infant formula advertising on websites were less likely to intend and initiate breast feeding.[23] A study in Mexico showed that 18.2% of mothers with children <18 months reported seeing infant formula advertising on social media in the previous year; however, they did not include baby foods and other digital platforms such as blogs, or companies' websites, and not all participants had access to the internet, which may explain the low prevalence compared with our results.[29]

No study has to date adapted the CLICK methodology, proposed by WHO, to investigate the exposure of parents to digital marketing of formula and baby food using both an online survey and capture-on-screen (recordings of mobile devices), to observe what parents see on the internet.[22] Another study by the same authors used the CLICK methodology to comprehend the ecosystem of digital marketing with interviews with key social actors and found widespread unregulated marketing methods that violate the Code,[40] which is consistent with the results of this study.

In both, the report of the parent's in the online survey and the capture-on-screen, violations of the Code were identified, which included the advertising of products such as formulas and growing-up milk to direct contact of companies with mothers and fathers through parent's online clubs. User-shared advertising of formula or baby foods on their social media was reported in the survey and observed in capture-on-screen. This form of marketing is more difficult to monitor and easily goes viral, contributing to a greater reach in the promotion of products and their acceptance by their peers,[41] a dynamic that allows the industry to expand advertising of the brand for free, or with very few resources, on social networks and platforms.[42 43]

The formula and baby food brands that parents reported seeing most frequently on the internet and those observed in capture-on-screen, that is, Nestle, Mead Johnson and Danone are the companies with the highest sales in this product category according to Euromonitor.[44] These companies have accumulated assets such as trademarks, copyrights and patents, and economic and human resources that have become forms of instrumental and structural forms of power,[45] with which they execute campaigns with the most effective advertising methods, prioritising the generation of profits before compliance with national and international guidelines.

Studies have evidenced the use of nutritional, technical and health claims on formulas and foods and beverages for young children.[7 28 46–50] Technical and scientific terms persuade mothers about the safety of these products and cast doubt on the best way to feed their children.[47 48] A study conducted with Latino parents in the USA indicated that 72% declared the provision of nutrients in formula as one of the reasons why they would feed their children with this product.[51] Evidence indicates that consumers consider a formula healthy if it contains nutrition or health claims,[49] which could explain the purchase of the product for reasons related to nutritional content and symptom relief. A recent experiment showed that parents randomly assigned to nutrition claims in fruit drinks such as 'no artificial sweeteners', '100% vitamin C' and '100% all natural', versus a control groups with no claims were more likely to choose fruit drinks instead of water for their children 1–5 years old, mistakenly believing these drinks were healthier.[52] Other types of claims have no scientific evidence, for example, those referring to the relief of gastrointestinal symptoms or claiming that the product is better for the baby's satiety.[53] The WHO and UNICEF recommend banning claims from formulas,[8] and from foods and beverages for young children that do not meet an adequate nutrition profile.[54]

This study has some limitations. There could be a residual confounding problem due to unmeasured variables that could be associated both with exposure to digital marketing and with infant and child feeding practices. However, we adjusted for the main potential confounders, such as age, parity, education, socioeconomic level, civil status, region and occupation of participants that are related to breastfeeding practices.[39] Also, an association between breastfeeding and IYCF practices and self-report of digital marketing was found. Nevertheless, no association with observed digital marketing from the subsample of parents with capture-on-screen was found, possibly due to the small sample size.

The cross-sectional nature of this methodology does not allow us to attribute causality, since exposure to digital marketing does not precede the child's feeding practices described here. Reverse causation could also be a problem if those who purchase formula and baby food were more likely to take notice of the marketing. However, we found that exposure to digital marketing was associated with a higher chance of purchasing formula and giving mixed feeds among parents whose initial intention was to exclusively breast feed their child before birth, suggesting that marketing interferes with the decisions of parents to breast feed. Since exposure and outcomes are self-reported measures, information obtained could be memory biased. However, the use of validated survey measures for IYCF practices based on the recall on the previous day is less prone to memory bias compared with the recall of a longer period. Similarly, capture-on-screen could be biased since parents were asked to record on their devices when searching for IYCF or childcare.

Additionally, people who participated in this survey were of a higher socioeconomic level and higher education, so the results of this study are not generalisable to the entire population. Nonetheless, the number of internet users with medium and low socioeconomic status is increasing and the effect of inappropriate marketing of breast-milk substitutes may be even greater among vulnerable population groups.

Among the strengths, this is probably the first study to investigate the exposure of parents to digital marketing of formula and baby food using parents' self-report and device recordings. Findings showed that there is a negative dose–response association between the number of products parents reported seeing in digital media and breastfeeding and complementary feeding practices in young children. Evidencing the urgent need of developing and implementing regulations to monitor and ban inappropriate marketing of breast-milk substitutes in digital media, and the use of health and nutrition claims for formulas and baby foods that motivate their purchase, displacing breastfeeding and adequate feeding practices.

Although the Code recommends broadly banning the promotion of breast-milk substitutes to the general public, countries' legislation should explicitly mention the prohibition of product placement, influencers, user-generated content, contact of companies with parents through baby clubs, online groups and other strategies used in digital marketing.[9] Legislation should also ban companies from disseminating IYCF information and educational materials for parents including digital media, which is considered in subsequent resolutions from the World Health Assembly (WHA69.9). These strategies are used by companies to have direct contact with parents and caregivers, positioning as child feeding and care experts, confusing and misleading parents on their decision to optimally breastfeed and complementary feed their children.[55]

A digital approach should be used to monitor and prevent infractions in digital media. In this sense, only artificial intelligence and machine learning systems can cope with the velocity and dynamism of digital marketing.[56] The feasibility of different strategies such as a digital app that can be used by the general public, health professionals and civil society organisations to report infractions should also be analysed.

CONCLUSIONS

Marketing of formula and baby food in digital media was negatively associated with optimal breastfeeding and complementary feeding practices for children under 2 years of age. To limit the company's influence on IYCF practices, regulations should be implemented, strengthened and monitored regularly. A ban on all forms of marketing of breast-milk substitutes should include digital media and restrict the use of claims for formula and baby foods. This call for action is urgent to safeguard the health and right of children to breast feeding and natural, nutritious, sufficient and quality food.

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Contributors MUM is the principal investigator on the grant from United Nations International Children's Emergency Fund. MUM, MS, FCA, MC, LT, SB and ABA conceptualized the project and contributed to the study design. All authors informed the study protocol. MUM, ASG, PJMC, MC, MS and FCA were involved in instrument design. MUM led the study, and ASG and PJMC participated in different subcomponents of the study. Data collection was mainly managed by MUM, ASG and PJMC. MS and FCA supervised the study. MUM contributed to the conceptual design of the analysis and the interpretation of the results. ASG conducted the statistical analyses and presentation of results. MUM and ASG developed the first draft of the manuscript. PJMC, MS, FCA, MC, LT, SB and ABA provided important intellectual content, interpretation of results and policy recommendations. All authors reviewed, revised, and approved the final manuscript. MUM is responsible for the overall content of the manuscript as guarantor.

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Supplementary material

Title: Digital marketing of formula and baby food negatively influences breastfeeding and complementary feeding: a cross-sectional study and video recording of parental exposure in Mexico

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Breastfeeding and child feeding practices. Parents were asked about their youngest child's consumption of the following list of foods, the day previous to the interview.

Supplementary Table 1. Foods and beverages were included in the questionnaire on feeding practices in children under two years of age.

Formulas
Infant formula (stage 1) (0-6 months)
Follow-on formula (stage 2) (6-12 months)
Growing-up milk (stage 3) (+12 months)
Special formula (comfort, to prevent colic or constipation, with probiotics)
Hypoallergenic formula (hydrolyzed)
Lactose-free formula
Fortified formula (DHA, HMO, iron, etc)
Other milk
Raw milk (cow, goat, etc)
Liquid or powdered pasteurized milk (cow, goat, etc)
Liconsa milk (liquid or powdered)
Flavored milk (chocolate, vanilla, other)
Evaporated milk
Soy, oat, almond, or other non-dairy milk
Other
Liquids/beverages
Plain water
Sodas
Natural juices (fruits/vegetables)
Packaged juices
Coffee
Tea

Atole
Broths
Cereals and legumes
Pasta
Rice
Tortillas or other food made with corn dough
Cereals not specific for baby (oat, amaranth, tapioca, quinoa, etc)
Tubers (potatoes, cassava, sweet potato, etc)
Bread (sweet/salt)
Industrialized bread
Legumes (beans, lentils, broad beans, etc)
Fruits and vegetables (fresh, frozen, whole, chopped, or pureed homemade)
Fruits (apple, orange, papaya, bannana, etc)
Vegetables (carrots, broccoli, green leafy, tomatoes, etc)
Meats (whole, chopped, or pureed homemade)
Beef and pork meat
Heart, liver, offal (kidney, sweetbreads)
Chicken
Fish (fresh or canned)
Ham or sausages or other cold cuts
Dairy and eggs
Cheese
Yakult o similar
Yogurt
Danonino type
Eggs
Commercial foods and beverages for children under two years of age and other industrialized products
Baby cereals (Nestum, Cerelac, other)
Vegetable or fruit canned baby porridge (Gerber, Heinz, other)
Meat canned baby porridge (Gerber, Heinz, other)
Packaged juices for baby
Bottled water for baby
Yogurt for baby
Cookies/snacks for baby
Organic packaged baby food
Supplements (Pediasure)
Breakfast cereals
Packaged chips, chips, cookies, candies, chocolates, or cupcakes

Selection of formula and baby food companies

We obtained information from the leading formula and baby foods with the highest sales and consumption in the country. We analyzed the Euromonitor report on baby food sales in Mexico [1] and the National Health and Nutrition Survey (ENSANUT 2018-19) [2] and selected the 10 companies and their brands that met at least 2 of the 4 selection criteria: 1)

that they were identified as in the ENSANUT 2018-19 and/or Euromonitor, 2) >100,000 followers in their main social media and/or official website, and 3) they were among the best sellers in pharmacies/supermarkets online. Two additional companies were included due to their rising sales of baby food (Holle Organic and Heinz), although did not meet all the inclusion criteria. The 11 companies and their brands/products are presented in **Supplementary Table 2**.

Supplementary Table 2. Companies and brands of formulas and baby foods were included in the study of digital marketing in Mexico.

Company	**Brand**
Nestlé	Nan Nido Good Care Excella Gold Gerber Cerelac Nestum
Mead Jonhson	Enfamil Enfagrow Nutramigen Pregestimil
Abbott	Similac Pediasure
Nutricia/Danone	Aptamil Danonino Danone
Genomma Lab	Novamil
Alula-Sanulac /Wyeth	Progress Gold SMA Gold Promil Gold Infacare
FriesmanCampi	Frisolac Friso
Siegfried Rhein	Nutri Baby
Nucitec	Alpha Pro
Holle baby food	Holle Organic
Heinz	Heinz baby club

Source: Elaborated with information from Euromonitor, The National Health and Nutrition Survey 2018-19, social media, and official websites of companies, pharmacies, and supermarkets in Mexico. IYCF: Infant and young child feeding practices.

Supplementary Table 3. Breastfeeding and IYCF practices in children under two years of age, and motivation and purchase of formula and baby food in Mexico. Online survey (n=1,074).

Outcome variables	%
Breastfeeding and child feeding practices	
Exclusive breastfeeding (children under 6 month) % de niños de 0-5 meses de edad que fueron alimentados exclusivamente con leche materna en el día anterior	32.6
Mixed breastfeeding (children under 6 months)[1] % of children 0-5 months of age who were fed formula and/or animal milk in addition to human milk on the previous day	34.5
Continued breastfeeding (12-23 months) % of children 12-23 months of age who were breastfed on the previous day	45.2
Consumption of sugary beverages (6-23 months) [2] % of children 6-23 months of age who consumed sugary beverages on the previous day	42.6
Consumption of unhealthy foods (6-23 months) [3] % of children 6-23 months of age who consumed unhealthy food on the previous day	72.0
Consumption of formula (0-23 months) % of children 0-23 months of age who consumed formula milk on the previous day	58.2
Purchase and purchase motivation of formula and baby food	
Formula and baby food purchases in physical or online stores % of parents who made one or more purchases of formula and baby food in physical and/or online stores in the month before the survey	87.2
Formula and baby food purchases in online stores % of parents who made one or more online purchases of infant formula and/or baby food in the month before the survey	17.7
Purchase motivation % of parents who report purchasing infant formula and baby food due to:	
Nutrient content	44.6
Ease of serving	37.1
Easy to preserve and store	22.5
Product is organic	21.8
Effectiveness for baby satiety	19.7
Relieves gastrointestinal symptoms	14.2
Purchase intention % of parents who report having performed:	
Formula and infant food online searches	37.8
Visits to infant formula and baby food companies' websites or social media	34.4

IYCF: Infant and Young Child Feeding practices according to indicators recommended by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) [3]. 1. Exclusive breastfeeding, human milk and plain water, human milk and animal milk/formula, human milk and non-dairy fluids, human milk, and complementary feeding products. 2. Commercially produced and packaged, sweetened beverages, including 100% fruit juice and fruit-flavored drinks to which sweeteners have been added. 3. Packaged foods for babies, and other industrialized products that can be high in sugar, salt, and/or unhealthy fats.

Supplementary Table 4. Association between exposure (self-report) of parents to digital marketing of formula and baby food, with the purchase of products and IYCF practices. Stratified by intention to exclusively breastfeed before birth.

Exposure to digital marketing in the last month (self-report)	Purchase of formula and baby foods[1]	Changes in child's feeding[1]	Exclusive breastfeeding (0-5 months)[2]	Continued breastfeeding (12-23 months)[3]	Mixed breastfeeding (0-5 months)[2]	Consumption of processed food[1]	Consumption of formula[1]	Consumption of sugary drinks[1]
	OR 95% CI	OR 95% CI	OR 95% CI	OR 95% CI	OR 95% CI	OR 95% CI	OR 95% CI	OR 95% CI
Frequency of digital marketing								
Never	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)
1-2 times/week	2.1 ** (1.1-4.5)	0.86 0.41-1.8	2.2 (0.60-7.8)	1.1 (0.47-2.3)	0.90 (0.20-4.1)	1.1 (0.60-1.8)	0.98 (0.57-1.7)	01.2 (0.69-2.1)
3-5 t times/week	3.2*** (1.7-6.4)	1.8 0.9-3.6	0.74 (0.21-2.6)	1.6 (0.74-3.5)	3.2 (0.77-13.5)	1.2 (0.70-2.1)	1.7* (0.98-2.9)	1.4 (0.80-2.4)
Daily	2.1* (1.0-4.0)	1.7 0.13-1.47	2.3 (0.51-10.0)	2.0 (0.82-1.6)	0.5 (0.08-3.5)	0.85 (0.46-2.6)	1.1 (0.57-1.9)	0.93 (0.51-1.7)
Tertiles of the number of advertised products observed in digital media								
Tertile 1	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)
Tertile 2	1.58 (0.94-2.6)	1.95** (1.1-3.6)	0.52 (0.19-1.4)	0.87 (0.48-1.59)	1.3 (0.39-4.3)	1.4 (0.93-2.2)	1.4 (0.96-2.2)	1.39 (0.92-2.1)
Tertile 3	2.9*** (1.6-5.4)	3.5*** (1.9-6.2)	0.44 (0.16-1.22)	1.4 (0.75-2.5)	5.4*** (1.4-20.9)	1.5 (0.96-2.3)	1.7*** (1.1-2.6)	1.58** (1.1-2.4)

[1]n=576 [2]n=145 [3]n=292

*p<0.10, **p<0.05, ***p<0.001. OR: Odds ratio. Logistic regression model adjusted for: the age of the baby (in months), age and sex of the survey participant, socioeconomic level, number of children, marital status, occupation, schooling, and region of the country. 1. Parents who made a purchase of formula and/or baby foods defined as commercial foods for children under two years of age, in the last month in physical or online stores. 2. Mothers/fathers who reported changing the way they were feeding their youngest children influenced by advertisements for formula and baby food observed in digital media.3. Infants 0-5 months of age who were fed exclusively with breast milk during the previous day. 4 Children 12-23 months of age who were fed breast milk during the previous day .4. Exclusive breastfeeding, human milk and plain water, human milk and animal milk/formula, human milk and non-dairy fluids, human milk and complementary feeding products. 5.Children 0-23 months that consumed packaged foods for babies, and other industrialized products that can be high in sugar, salt, and/or unhealthy fats during the previous day. 6.Children 0-23 months that consumed infant formula (0-6 months), follow-on formula (6-12 months), growing-up milk (+12 months), and special formulas in the previous day 7. Children 0-23 months that consumed commercially produced and packaged, sweetened beverages, including 100% fruit juice and fruit-flavored drinks to which sweeteners have been added during the previous day.

Supplementary Table 5. Association between exposure (self-report) of parents to digital marketing of formula and baby food, with the purchase of products and IYCF practices. Stratified by intention to mixed breastfeed or formula feed before birth.

Exposure to digital marketing in the last month (self-report)	Purchase of formula and baby foods[1]	Changes in child's feeding[1]	Exclusive breastfeeding (0-5 months)[2]	Continued breastfeeding (12-23 months)[3]	Mixed breastfeeding (0-5 months)[2]	Consumption of processed food[1]	Consumption of formula[1]	Consumption of sugary drinks[1]
	OR 95% CI	OR 95% CI	OR 95% CI	OR 95% CI	OR 95% CI	OR 95% CI	OR 95% CI	OR 95% CI
Frequency of digital marketing								
Never	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)
1-2 times/week	2.2 (0.71-6.7)	1.6 (0.76-3.3)	1.44 (0.22-9.3)	0.99 (0.42-2.3)	1.15 (0.24-5.2)	0.77 (0.42-1.4)	0.72 (0.37-1.4)	0.50 (0.23-1.1)
3-5 t imes/week	1.8 (0.65-5.1)	2.2** (1.2-4.4)	0.86 (0.12-6.0)	1.6 (0.71-3.8)	2.0 (0.49-8.2)	0.97 (0.53-1.8)	1.2 (0.61-2.2)	0.96 (0.44-2.0)
Daily	4.8 (0.95-25.1)	2.3** (1.1-5.1)	0.66 (0.08-5.3)	0.87 (0.25-3.0)	2.0 (0.48-8.4)	0.63 (0.31-1.3)	1.9 (0.76-1.1)	1.5 (0.56-4.3)
Tertiles of the number of advertised products observed in digital media								
Tertile 1	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)
Tertile 2	1.38 (0.57-3.33)	1.56 (0.89-2.7)	0.82 (0.19-3.5)	1.38 (0.71-2.6)	0.97 (0.30-3.1)	1.3 (0.93-2.2)	0.85 (0.52-1.4)	0.75 (0.43-13)
Tertile 3	1.79 (0.66-4.9)	2.9*** (1.7-4.9)	0.13** (0.02-0.69)	0.73 (0.35-1.5)	1.7 (0.63-4.6)	1.5 (0.93-2.4)	2.8*** (1.6-5.0)	2.1** (1.1-3.9)

[1]n=498 [2]n=119 [3]n=243

*p<0.10, **p<0.05, ***p<0.001. OR: Odds ratio. Logistic regression model adjusted for: the age of the baby (in months), age and sex of the survey participant, socioeconomic level, number of children, marital status, occupation, schooling, and region of the country. 1. Parents who made a purchase of formula and/or baby foods defined as commercial foods for children under two years of age, in the last month in physical or online stores. 2. Mothers/fathers who reported changing the way they were feeding their youngest children influenced by advertisements for formula and baby food observed in digital media.3. Infants 0-5 months of age who were fed exclusively with breast milk during the previous day. 4 Children 12-23 months of age who were fed breast milk during the previous day .4. Exclusive breastfeeding, human milk and plain water, human milk and animal milk/formula, human milk and non-dairy fluids, human milk and complementary feeding products. 5.Children 0-23 months that consumed packaged foods for babies, and other industrialized products that can be high in sugar, salt, and/or unhealthy fats during the previous day. 6.Children 0-23 months that consumed infant formula (0-6 months), follow-on formula (6-12 months), growing-up milk (+12 months), and special formulas in the previous day 7. Children 0-23 months that consumed commercially produced and packaged, sweetened beverages, including 100% fruit juice and fruit-flavored drinks to which sweeteners have been added during the previous day.

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2 Shamah-Levy T, Vielma-Orozco E, Heredia-Hernández O, *et al. Encuesta Nacional de Salud y Nutricion 2018-19 Resultados nacionales*. 2020.

3 World Health Organization and the United Nations Children's Fund (UNICEF).

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Supplementary material

Title: Digital marketing of formula and baby food negatively influences breastfeeding and complementary feeding: a cross-sectional study and video recording of parental exposure in Mexico

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Survey for parents of children aged 0-23 months

#	Question	Options	Question type
Section I Sociodemographic Characteristics			
1	How old are you?	18 years or more	**(Display ages 18 and up)**
2	How many children do you have now?	None 1 2 3 4 or more	[Single answer]
3rd	How old is your youngest child? (In months) *If your youngest children are twins, consider the data from the last one born	*Deploy options 0-23 months	[Single answer]
3b	What is your child's date of birth?	Day Month Year	Deploy options day (1-31) month (January-December) year (2018-2020)
4	What's your youngest child gender?	Boy Girl	[Single answer]
5	What's your gender?	Man Woman	[Single answer]

			(Only for those who answered man go to Q7)
6	Are you currently pregnant?	Yes Not I don't know I'd rather not answer	[Single answer]
7	What's your marital status?	Single Married Free union Divorced(o) or separated Widow I'd rather not answer	[Single answer]
8	What state are you currently living in?	**(Display list of states of the republic)**	[Single answer]
9	What city or town do you currently live in?	**(Display list of locations in selected state)**	[Single answer]
10	What is your current main occupation?	Student Employee or employee(o) Autonomous or independent Householdhold chores (householdwife) Retired Unemployed(or) or looking for work Other (specify)	[Single answer]
11	What is your highest level of education?	Without instruction or preschool Elementary Middle school High school Bachelor's degree Graduate degree	[Single answer]
12	What is the highest degree of study of the person with the highest income in the family and/or on which household decisions fall?	Without instruction or preschool Elementary Middle school High school Bachelor's degree Graduate degree	[Single answer]
13	How many complete bathrooms with shower and toilet (WC) are there in your household?	0 1 2 or more	[Single answer]
14	How many cars or vans do you have	0 1 2 or more	[Single answer]

	in your household?		
15	Without taking into account the mobile connection that you could have from a smart phone, does your householdhold have a fixed internet connection?	Yes Not	[Single answer]
16	In your household, how many rooms are used as bedrooms? Not taking into account bathrooms or hallways	0 1 2 3 4 or more	[Single answer]
17	How many people of each age live in your household including you?	Children under 2 years of age 2 to 5 years old 6 to 12 years old 13 to 17 years of age 18 to 60 years of age Over 60 years of age	Write number for each option
Section II Breastfeeding and Infant Feeding Practices			
18	Did you breastfeed or are you currently breastfeeding your youngest child? *Includes colostrum and expressed milk *(ADD NOTE: "Colostrum is the first milk that the mother produces when she starts breastfeeding, it is denser yellow, and lasts between 2-3 days. Expressed milk is breast milk that is not given directly from the breast but is taken out and given to the baby in another way (bottle or cup)*	Yes Not I don't know/prefer not to answer	[Unique Answer] (**Only for those who answered no, go to question 22)**
19	How much time elapsed between your youngest	Minutes (specify) Hours (specify) Days (specify)	[Single answer]

	child birth and the time you breastfed him/her for the first time?	I don't know/I'd rather not answer	
20	Is your youngest child still breastfeeding?	Yes No I don't know/prefer not to answer	[Unique Answer] **(Only for those who answered yes go to question 23.)**
21	How long did you breastfeed your youngest/child? *Including colostrum and expressed milk *(ADD NOTE: "Colostrum is the first milk that the mother produces when she starts breastfeeding, it is denser, yellow and lasts between 2-3 days. Expressed milk is breast milk that is not given directly from the breast but is taken out and given to the baby in another way (mamila or glass)*	Still breastfeeding Days (deploy options 1-30) Months (deploy options 1-11) Years (deploy options 1-2) I don't know/I'd rather not answer	[Single answer]
22	Why didn't you breastfeed your youngest child?	I had no milk/mother had no milk Mother's illness The baby didn't want to Went back to work or school/mother went back to work or school I didn't like it/ mother didn't like it Other (specify) **(leave a blank space so they can answer openly)**	**(This question is only for those who answer no in question 18.)**

		I don't know/ I'd rather not answer	
23	Do you think it is possible to transmit COVID-19 to the baby if you breastfeed?	Yes No I don't know/prefer not to answer	[Single answer]
24	Have your breastfeeding practices (or your partner's practices) changed because of concerns about COVID-19?	Yes No I don't know/prefer not to answer	[Single answer] If you answer no, I do not know/I prefer not to answer question 25
24a	In what way did your breastfeeding practices change during COVID-19 pandemic?	I breastfed my baby more I breastfed my baby less I stopped breastfeeding my baby/my partner stopped breastfeeding the baby I interrupted or my partner interrupted breastfeeding for a few days I don't know/prefer not to answer	[Single answer]
25	Before the birth of your youngest child, what were your plans to feed your child/toddler?	Breastfeeding Breastfeeding and infant formula feeding or other milk Feed only infant formula or other milk Other (specify) **(leave a blank space so they can answer openly)**	
26	Who makes decisions about how to feed the baby?	Mother Father Both Other (specify) **(leave a blank space so you can answer openly)**	[Single answer]

27	Who is responsible for feeding your child?	Mother Father Both Other (specify) **(leave a blank space so you can answer openly)**	[Single answer]
28	How old was your youngest child (in moths) when you started giving him the following drinks and food? If your child was less than one month, they score “0” in months.		
a	Water	Months (deploy options 0-23 months) I haven’t given it yet I don’t know	[Single answer]
b	Infant formula	Months (deploy options 0-23 months) I haven’t given it yet I don’t know	
c	Powedered cow’s milk, liquid cow’s milk, flavoured milk, etc (does not include infant formula)	Months (deploy options 0-23 months) I haven’t given it yet I don’t know	
d	Tea, juices, soft drinks, coffee with water, broths (bean, soups, beef or chicken)	Months (deploy options 0-23 months) I don’t give you yet I don’t know	
e	Atoles or cereals with water or milk	Months (deploy options 0-23 months) I don’t give you yet I don’t know	
f	Pasta soup, tortillas, bread, boxed cereals, rice, beans, lentils, other cereal or legumes.	Months (deploy options 0-23 months) I haven’t given it yet I don’t know	
g	Whole fruits or vegetables or home-made porridge	Months (deploy options 0-23 months) I haven’t given it yet I don’t know	
h	Beef or pork (chopped or in porridge)	Months (deploy options 0-23 months) I haven’t given it yet I don’t know	
i	Chicken or fish meat (chopped or in porridge)	Months (deploy options 0-23 months) I haven’t given it yet I don’t know	

j	Ham or any other sausages	Months (deploy options 0-23 months) I haven't given it yet I don't know	
k	Cheese, yogurt, probiotic drink	Months (deploy options 0-23 months) I haven't given it yet I don't know	
l	Eggs	Months (deploy options 0-23 months) I don't give it yet I don't know	
m	Chips, crackers, sweets, or pastries	Months (deploy options 0-23 months) I haven't given it yet I don't know	
n	Packaged porridges, baby juices, packaged baby cereals, and other packaged baby food	Months (specified) (deploy options 0-23 months) I haven't given it yet I don't know	
29	From the following list of foods, select the ones that your youngest child consumed yesterday [Multiple Reply]		

Infant formula	
	Infant formula (stage 1) (0-6 months)
	Follow-up formula (step 2) (6-12 months)
	Growing-up milk (stage 3) (>12 months)
	Specialized formula: comfort, anti-colic, with probiotics
	Hypoallergenic or hydrolyzed formula
	Lactose-free formula
	Fortified formulas: with DHA, HMO, iron, etc
Other milks	
	Milk (cow, goat, etc.)
	Pasteurized liquid or powdered milk (cow, goat, etc.)
	Milk Liconsa (liquid or powder)
	Flavored milk (with chocolate, vanilla or other)
	Evaporated milk
	Soy milk, oats, almonds, or other vegetable milk
	Other milk
Liquids	
	Plain water
	Soft drinks
	Natural fruit or vegetable juices
	Packed fruit or vegetable juices
	Coffee
	Tea
	Atole with water or milk
	Broths (beans, soups, beef or chicken)
Cereals and legumes	
	Pasta soup
	Rice
	Tortillas or other food made with corn dough

	Cereals (not specific for babies) (oats, amaranth, tapioca, quinoa, etc.)
	Tubers (potato, cassava, sweet potato)
	Baker's bread (sweet or salty, bolillo, telera)
	Industrialized bread (sliced white or whole-grain bread, in bag)
	Beans, lentils, beans, etc
Fruits and vegetables (fresh, frozen, whole, chopped or home-made porridges)	
	Fruits (apple, orange, papaya, banana, etc)
	Vegetables (carrots, broccoli, green leaf, tomato, etc)
Home-made meats (whole, minced or mashed)	
	Beef or pork
	Heart, liver, offal (kidney, gizzards)
	Chicken
	Fish (fresh or canned)
	Tummy
	Ham or sausage or other sausage
Dairy and egg	
	Cheese (any)
	Yakult or similar
	Yogurt
	Danonino-type yogurt
	Eggs
Infant and young child food and other industrialized foods	
	Baby cereals (Nestum, Cerelac, or other)
	Packaged fruit or vegetable baby porridge (Gerber, Heinz or other)
	Packaged meat baby porridge (Gerber, Heinz or other)
	Packaged baby juices
	Bottled baby water
	Baby yogurt
	Baby snacks or bisquits
	Organic baby food (packaged)
	Supplements (Pediasure)
	Boxed breaskfats cereals
	Packed fries, chips, crackers, sweets, chocolates or pastries

Section III Use of Internet and social media			
30	How often did you surf the internet in the last month? (On average)	Every day or almost every day Three times a week Less than three times a week I don't use/I don't have internet Other: **(leave a blank space so you can answer openly)**	[Single answer] **Section skip: (Only for those who answered "I do not use" move to section IV)**
31	How many minutes/hours in a day (on average) do you surf the Internet?	Hours (display options 0 to 24) Minutes (display options 0 to 59)	[Multiple response]
32	On which of these devices did you	Desktop computer	[Multiple response]

	surf the internet in the last month?	Mobile computer/laptop Telephone/Smartphone Tablet (iPad, Galaxy Tab, etc) Video game consoles, e-book, Smartwatch Other device	
33	Which of the following social media platforms do you have a profile, account, or user?	Facebook Instagram Twitter Snapchat Tik Tok YouTube Whatsapp Pinterest Spotify Other (specified) **(leave a blank space so you can answer openly)** None	[Multiple response]
34	In the last month Have you used the internet to search or obtain information on tips, videos, product purchase or other activities related to the following topics?	Nutrition and infant or young child feeding Infant formula, baby food or drinks for children under 2 years (porridges, cereals, juices, baby yogurts) Breastfeeding Maternity/paternity issues, parenting Child health and development Another issue related to child health and nutrition (specify) **(leave a blank space so you can answer it openly)** None	[Multiple response]

35	In the last month, Did you perform any of the following activities(s) related to **child nutrition and feeding** on the internet?	Social media engagement (Facebook, Twitter, Instagram, YouTube, Tik Tok, Snapchat, etc) Watch videos, blogs, YouTube channels Attend virtual teleconferences or webinars Search for information on the internet (websites, blogs, news) Visit infant formula and baby foods (porridges, cereals, juices, baby yogurts) websites/websites Buy infant formula and/or baby foods online (porridges, cereals, juices, baby yogurts) Mobile applications (apps) downloaded on your mobile device Other (specify) **(leave a blank space so you can answer openly)** None	[Multiple response]
Section IV Use of Digital devices (NN)			
36	Does your youngest child use any of the following mobile devices with Internet?	Smartphone/smartphone Mobile computer/laptop Desktop/desktop computer Tablet (iPad, Galaxy Tab, etc) E-libro/e-reader (Kindle, Kobo, etc) Video game consoles (Nintendo Swtich, PSP, Xbox) Smart TV Other (specified) **(leave a blank space so you can answer openly)**	[Multiple response] **Section skip: (Only for those who answered "none" move to section V.)**

		None	
37	Do you use ad blockers when your child uses a mobile device with internet?	If Not I don't know/prefer not to answer	[Single answer]
38	Have you downloaded games and/or videos for your baby or did your baby play online games sponsored by companies that sell formulas or baby food for babies or children under two years old?	If Not I don't know/prefer not to answer	[Single answer]
39	Have you seen ads about formulas or foods for babies or children under two years old in games and/or apps your child uses on their mobile device?	If Not I don't know/prefer not to answer	[Single answer]
Section V Exposure to Digital Marketing			
40	In the last month have you seen advertising, promotion, banners, sponsored links, or online messages of the following products? Remember when you visited or consulted websites, social networks, apps, email, news, webinars, YouTube channels, etc	**Infant formula (0-6 months) (stage 1)** **Follow-up formula (6-12 months) (stage 2)** **Growing-up milks (12-24 months) (stage 3)** Food and drinks for infants or children under two years of age (baby porridge, cereals, biscuits, juices, water or yogurt) None I don't remember	[Single answer]
41	Where have you seen advertising, promotion, banners,	Search engines (Google, Yahoo, Bing, etc) Social media platforms	[Multiple response]

	sponsored links or online messages of formulas and foods for babies or children under two years old?	__Facebook __Instagram __Twitter __YouTube __Whatsapp _Snapchat __Tik Tok __Pinterest Infant formula and baby food companies' webstites Supermarkets, pharmacies, baby stores' websites Child nutrition and feeding websites/blogs Downloaded mobile applications (Apps) E-mail address Teleconferences/webinars Other (specify) **(leave a blank space so you can answer openly)** None	
42	In the last month, how often did you see advertising for infant formula and baby foods for babies or children under two online, social media and/or websites?	Daily 3-5 times a week 1-2 times a week Less than 1 time per week I don't know/don't remember Other (specify) None	[Single answer]
43	In the last month, which brand do you remember seeing the most advertising on the internet, social networks or websites for infant formula or food for infants under 2 years of age?	Display product images with document codes (M01-M26) **in Word images** Add: **Other (specify) (leave a blank space so they can answer in an open-ended manner)** **None**	[Multiple response]

Enfamil	*Enfagrow*	*Nutramigen*	*Pregestimil*
Gerber	*Good Care*	*Excella Gold*	*NAN*
Nido	*Similac*	*PediaSure*	*Novamil*
Frisolac	*Friso*	*Alpha Pro*	*Promil Gold*
SMA Gold	*Progress Gold*	*Heinz*	*Danone*
Danonino	*Holle*	*Nestum*	*Cerelac*
Nutribaby	*Enfacare*		

44. From the following list of infant formulas and baby foods for children under two years of age:

Choose the products for which you have seen online advertising (when surfing the internet, watching social networks, viewing or mail, watching online videos, etc) in the last month.

Choose the products for which you have purchased in the last month (even if you have not seen advertising for the product).

*** Put in columns from left to right: the name of the product (column 1 of the Word image file), the image of the product (column 3 of the Word image file), "I have seen online advertising" and "I have bought the product".**
To the end of each question add the options "other" and "none".

44a	**From the following list of infant formula products (stage 1) (0-6 meses)** Select the products for which you have seen online advertising in the last month Select the products you have purchased in the last month (even if you have not seen advertising)	I have seen online advertising I have purchased the product Other (please specify) (leave a blank space so that you can answer open-endedly) None	[Multiple response]
Enfamil etapa 1	*Similac etapa 1*	*SMA Gold 1*	*Frisolac Gold 1*
Novamil 1	*Nan optipro 1*	*Alpha Pro etapa 1*	*Nidal bebé 1*
Good Start 1	*Infacare 1*	*Nutribaby Premium 1*	

44b	**From the following list of follow-up formula products (stage 2) (6-12 months)** Select the products for which you have seen online advertising in the last month Select the products you have purchased in the last month (even if you have not seen advertising)	I have seen online advertising I have purchased the product Other (please specify) (leave a blank space so that you can answer open-endedly) None	[Multiple response]
Enfagrow 2	*Similac 2*	*Promil Gold 2*	*Firsolac Gold 2*
Novamil 2	*NAN optipro 2*	*Nidal bebé 2*	*Good Start 2*
Infacare 2	*Nutribaby Premium 2*		
44c	**From the following list of Growing-up milk products (stage 3) (+12 months)** Select the products for which you have seen online advertising in the last month Select the products you have purchased in the last month (even if you have not seen advertising)	I have seen online advertising I have purchased the product Other (please specify) (leave a blank space so that you can answer open-endedly) None	[Multiple response]
Enfagrow 3	*Similac 3*	*Progress Gold 3*	*Friso Gold 3*
Novamil 3	*NAN optipro 3*	*Alpha Pro etapa 3*	*Nido Kinder*
Infacare 3	*Nutribaby Premium 3*		

44d	**From the following list of specialized formula products** Select the products for which you have seen online advertising in the last month Select the products you have purchased in the last month (even if you have not seen advertising)	I have seen online advertising I have purchased the product Other (please specify) (leave a blank space so that you can answer open-endedly) None	[Multiple response]
Enfagrow Confort	*Nan Confort total*	*Similac Total comfort*	*Frisolac Comfort*
Novamil AE 1	*Novamil Rice*	*Alpha Pro Comfort*	*Good Start comfort*
Nutribaby Premium comfort			
44e	**From the following list of fortified infant formula products** Select the products for which you have seen online advertising in the last month Select the products you have purchased in the last month (even if you have not seen advertising)	I have seen online advertising I have purchased the product Other (please specify) (leave a blank space so that you can answer open-endedly) None	[Multiple response]
Good Care 3	*Excella Gold*	*Enfagrow Promental*	*Enfamil Promental*
Nan Supreme	*Similac HMO*		
44f	**From the following list**	I have seen online advertising	[Multiple response]

	of lactose-free infant formula products Select the products for which you have seen online advertising in the last month Select the products you have purchased in the last month (even if you have not seen advertising)	I have purchased the product Other (please specify) (leave a blank space so that you can answer open-endedly) None	
Enfamil sin lactosa	*Similac isomil 1*	*Similac isomil 2*	*Frisolac Gold sin lactosa*
Nan sin lactosa	*SMA sin lactose gold*	*Pregestimil premium*	*Nutribaby Premium sin lactosa*
44g	**From the following list of hypoallergenic infant formula products** Select the products for which you have seen online advertising in the last month Select the products you have purchased in the last month (even if you have not seen advertising)	I have seen online advertising I have purchased the product Other (please specify) (leave a blank space so that you can answer open-endedly) None	[Multiple response] Desplegar nombre del producto e imágenes de productos con códigos (**HWHA1-HWHA7)** del documento en Word de imágenes
Nutramigen LGG	*Frisolac Gold Intensive HA*	*NAN H.A*	*Good Start Extensive HA*
Novamil Allernova	*SMA HA Gold*	*Puramino*	
44h	**From the following list of baby foods and beverages**	I have seen online advertising I have purchased the product	[Multiple response]

	Select the products for which you have seen online advertising in the last month Select the products you have purchased in the last month (even if you have not seen advertising)	Other (please specify) (leave a blank space so that you can answer open-endedly) None	Desplegar nombre del producto e imágenes de productos con códigos **(AE1-AE13)** del documento en Word de imágenes
Nestum arroz	*Nestum avena*	*Gerber agua para bebé*	*Gerber cereal avena*
Gerber 4 cereales	*Gerber vegetable porridge (any)*	*Gerber fruit porridge (any)*	*Gerber meat porridge (any)*
Gerber yogolino	*Gerber yogurt*	*Gerber chips*	*Gerber pufs*
Gerber primeras galletitas	*Gerber junior*	*Heinz fruit pouch (any)*	*Heinz vegetable pouch (any)*
Cerelac (box)	*Cerelac (can)*	*Danone junior*	*Heinz jugo*
Heinz jar porridge (any)	*Danonino*	*Pediasure (can)*	*Pediasure (plastic bottle)*
44i	**From the following list of organic baby food and beverages** Select the products for which you have seen online advertising in the last month Select the products you have purchased in the last month (even if you have not seen advertising)	I have seen online advertising I have purchased the product Other (please specify) (leave a blank space so that you can answer open-endedly) None	[Multiple response] Desplegar nombre del producto e imágenes de productos con códigos (**HWO1-HWO4)** del documento en Word de imágenes
Gerber organic porridge (any)	*Gerber jar organic porridge (any)*	*Holle Organic Crunchy Snack*	*Holle Organic Baby Muesli*
Holle Organic Oat	Gerber veggie fruit orgánico		

45	What type of promotion or advertising did the products you indicated in the previous question have?	Giveaways Education (how to prepare formula, nutritional content, infant feeding recommendations, etc.) Discounts or promotions (more product for the same price) Invitations to webinars/teleconferences given by professionals (paediatricians, nutritionists) Celebrities Interaction (sharing photos, experiences, videos, testimonials, storytelling) Only product advertisement None Don't know / don't remember	[Multiple response]
46	Have you shared with other parents (or on your social media profiles) videos, websites, photos, advertisements or any content about infant or toddler formula or food	Yes No Don't know /prefer not to answer	[Single answer]
47	In the last month have you been part of any online communities of parents and caregivers of infants and young children, such as breastfeeding groups (baby clubs) or parenting support groups	Yes No Don't know /prefer not to answer	[Single answer] **Question skip** **(For those who answer no, skip to question 49)**

	(parenting groups)?		
48	Was it sponsored or organized by a company that sells any formula or food for infants or children under two years of age?	Yes (specify the company) No Don't know /prefer not to answer	[Single answer]
49	In the past month, have you participated in any online events or activities for parents and other caregivers of infants and young children, such as photo contests, video contests, or other types of contests?	Yes No Don't know /prefer not to answer	[Single answer] Section skip: (For those who answer no, skip to section VI)
50	Was it sponsored or organized by a company that sells any food for babies or children under two years of age?	Yes (specify the company) No Don't know /prefer not to answer	[Single answer]
51	What kind of prizes did these contests offer?	Free product Discount Coupons Baby accessories Cash/points to exchange for product Other (please specify) leave one line blank so I can answer open-ended) Don't know/prefer not to answer	[Multiple response]

52a	Since the start of the COVID-19 pandemic in Mexico (March 2020), have you received infant formula (0-6 months), follow-on formula (6-11 months) or growing-up milk (+12 months) as a gift, free sample or donation?	Si No No sé/prefiero no responder	[Single answer] Section skip (For those who answer no, I don't know/prefer not to respond, skip to section VI)
52b	From whom did you receive the infant formula, follow-on formula or growing up milks?	Health personnel Federal government State government Municipal government Civil association Other (leave a blank space so that you can answer in an open-ended manner) I don't know /I prefer not to answer	[Multiple response]
Section VI Perception of Digital Marketing Campaigns			
53	When you think about the advertising you see on social networks and/or websites about formulas foods/drinks for babies or children under two years of age (baby food, boxed cereals, juices, yogurt) what do you remember most?	Images (families, babies, meals) Product picture Product slogan The brand's name. Logo or image (of the brand or product) Reviews/comments/testimonials Benefits offered by the product Feelings/emotions I had about the advertisement Other (specify) leave a blank line so that you can answer in an open-ended manner) I don't know/prefer not to answer	[Multiple response]
54	When seeing advertisements online or on	Trust Admiration	[Multiple response]

	your social media about formulas and foods or drinks for babies or children under two (boxed cereals, porridges, juices, yogurt). What feelings have you had?	Disgust Annoyance Interest Distrust Indifference Other (specify) leave a blank space so that you can answer in an open-ended manner) I don't know/prefer not to answer	
55	Because of the infant formula and baby foods or drinks advertisement you've seen online, on social media and on websites Have you felt the need to change the way you are feeding your baby?	Yes No Don't know/prefer not to answer	[Single answer]**Salto: (Para quienes respondieron no, pasar a pregunta 57.)**
56	Did you change the way you feed your baby?	I stopped breastfeeding I started feeding infant formula, follow-on, or growing-up milk I started giving her packaged baby food and/or drinks I did not change the way I feed my baby I don't know/prefer not to answer	[Multiple response]
57	In the last month, have you purchased infant formula, foods or drinks for infants or children under two years of age?	Infant Formulas (stage 1) (0-6 months) Follow-up formula (stage 2) (6-11 months) Growing-up milks (stage 3) (+12 months)	[Multiple response] **Salto: (Para quienes respondieron "ninguno" pasar a sección VII.)**

	Choose the options you have purchased in the last month	Baby porridges for infants or children under two years of age Cereals for infants or children under two years old Juice for infants or children under two years of age Yogurt or Danonino for infants or children under two years old Crackers/snacks/puffs for infants or children under two years old Bottled baby water Other food for infant/toddler (specify) None Don't know/prefer not to answer	
58	What motivated you to purchase these products?	Ease of preparation Preservation of nutrients Has special nutrients for my baby's needs, not found in other products Relieve colic, allergies or other baby discomforts Are organic foods so they are healthier for baby Helps my baby fill up faster. Other (please specify) leave a blank space so I can answer open-endedly.) I don't know/prefer not to answer	[Multiple response]
Section VII Perception of BMS in relation to Breastfeedig and Health			
59	Indica cómo te sientes respecto a cada uno de los siguientes enunciados sobre fórmula infantil y lactancia materna [Single answer]		

	Strongly Agree	Agree	Neutral	Desagree	Strongly disagree
Infant formulas can provide nutrition that infants do not get from breast milk.					

Infant formulas satisfy the baby's hunger more than breast milk.						
Infants should be exclusively breastfed for the first 6 months.						
Most babies do not need specialized formulas (e.g. for colic, lactose intolerance, cow's milk protein allergy).						
Infant formulas may be better for infants' digestion than breast milk						
Infant formulas may be better for infant brain development than breast milk						
Infant formulas strengthen infants' immune systems and have less illness than when they are breastfed						
Las fórmulas infantiles ayudan al crecimiento del bebé						
Babies under 24 months of age should not consume any beverages and/or foods with added sugars.						
Breastfeeding should continue until at least 2 years of age of the child						
Children between 1 and 2 years of age should drink whole milk.						
Most infant formulas and powdered milks contain added sugars.						
Infant formulas and powdered milks for children from 1 to 3 years of age provide nutrients not found in other foods and beverages.						
Infant formulas have negative consequences on the health of infants.						
During the Covid-19 pandemic, it is best to feed infants with infant formula as the virus can be transmitted through human milk.						

Section VIII Knowledge of the Code, regulation and corporate responsibility			
60	Do you know what the International Code of Marketing of Breast-milk Substitutes (the Code) is?	Yes No Don't know/prefer not to answer	[Single answer] *Si responde No pasar a la pregunta 62
61	Which of the following provisions did you know about the Code?	No advertising or other forms of promotion of breast milk substitutes to mothers and the public is permitted.	

	When we say breast milk substitutes, we mean infant formula, follow-on or growing-up milks.	Samples of breast milk substitutes for mothers, families and health personnel are not allowed. Advertising or any form of promotion of breast milk substitutes in health services (on posters, calendars, materials, etc.) is not allowed. It is not allowed to give gifts or samples of breastmilk substitutes to health personnel, nor should health personnel accept them. Donations or low-priced sales of breast milk substitutes are not allowed in any health centre or hospital. Breast milk substitutes should state the superiority of breastfeeding, the need to consult with health personnel before using a product and contain health risk warnings. Breast-milk substitutes should not contain images of babies or text that idealize the use of that product. None Don't know/prefer not to answer	
62	Do you think that current regulations on infant formula advertising by companies are sufficient?	Yes No Don't know/prefer not to answer	[Single answer]
63	Do you think that companies that produce infant formulas and other milks, baby foods or drinks make us think that their products are	Yes No Don't know/prefer not to answer	[Single answer]

	better than breast milk?		
Section IX Continuation in the study			
64	Would you authorize us to contact you to schedule a virtual interview to talk more about breastfeeding and infant feeding?	Yes No	**(For those who answered yes, display an option to leave phone number and e-mail)**
65	Would you authorize us to contact you to participate in an online Community where you will perform simple activities of recording your cell phone screen while surfing the Internet for information on infant feeding?	Yes No	**(For those who answered yes, display an option to leave phone number and e-mail)**